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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,624	07/10/2003	Eduardo Blumwald	529642000500	4097

20872 7590 03/14/2006  
MORRISON & FOERSTER LLP  
425 MARKET STREET  
SAN FRANCISCO, CA 94105-2482

EXAMINER

KUMAR, VINOD

ART UNIT	PAPER NUMBER
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1638

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/617,624	BLUMWALD, EDUARDO	
	<b>Examiner</b>	<b>Art Unit</b>	
	Vinod Kumar	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01/31/2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,9-11 and 17-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>08/19/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. The rejection of claims 3-8 under 112, second paragraph is withdrawn in light of claim amendments.
3. The rejection of claims 1-6, 9 and 11 under 102(b) is withdrawn in light of claim amendments.

### ***Claim Rejections-35 USC § 112***

4. Claims 1, 9-11, 17-21 remain and new claims 22-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly out and distinctly claim the subject matter which Applicant regards the invention, for the reasons of record stated in Office action mailed September 28, 2005. Applicants traverse the rejection in the paper filed January 31, 2006. Applicants arguments were fully considered but were not fully persuasive.

In the paper filed January 31, 2006 Applicants indicate that support for the term "near or near normal" in the recitation "normal or near normal composition of fatty acids" can be found on page 8, paragraph 30 of specification. However, page 8, paragraph 30 of specification states that distribution of major fatty acids in the oil produced can be within 3-20% range of the fraction of the same major fatty acid in oil produced by the

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corresponding plant grown in low to moderate salt. However, rejection is maintained because "high", "low" and "moderate salt are not defined.

The rejection of claims 3-8 is withdrawn in light of the claim amendment for the recitation "optimal osmolality".

5. Claims 1, 9-11, 21 remain and new claims 22-25 and 30 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a transgenic plant comprising a  $\text{Na}^+/\text{H}^+$  transporter transgene set forth in SEQ ID NO: 1, does not reasonably provide enablement for a transgenic plant comprising any NHX-type transporter protein. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims for the reasons of record stated in Office action mailed on September 28, 2005. Applicants traverse the rejection in the paper filed January 31, 2006. Applicant's arguments were fully considered but were not fully persuasive.

In the paper filed January 31, 2006, Applicants indicate that by describing a sodium chloride tolerant transgenic plant comprising SEQ ID NO: 1, enables them for any transgenic plant comprising any NHX-type transporter because one of skill in the art would predict that transgenic plant comprising an NHX-type transporter other than SEQ ID NO: 1 would produce the same result as the one described in the working example (response, Page 9, paragraphs 4-5 through Page 10, paragraph 1). However, Venema et al (JBC, 278:22453-22459, 2003), who teach that a tomato NHX2 acts as a  $\text{K}^+/\text{H}^+$

transporter rather than  $\text{Na}^+/\text{H}^+$  transporter, and affects accumulation of  $\text{K}^+$  and not  $\text{Na}^+$  in intracellular compartments. (See Abstract; Page 22453, last paragraph of introduction; Page 22457, Figure 5). Apparently, all NHX-type transporters do not share the same functional activity. Thus, it is highly unpredictable to obtain a transgenic plant with same phenotype, comprising expressing any NHX-type transporter in a transgenic plant as encompassed by the claims 1, 22 and claims dependent therefrom. Accordingly, undue experimentation is required to obtain the claimed invention.

The rejection of claim 17 is withdrawn in light of the claim amendment.

6. Claims 1, 9-11, 21 remain and new claims 22-25 and 30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention for the reasons of record stated in Office action mailed on September 28, 2005. Applicants traverse the rejection in the paper filed January 31, 2005. Applicants arguments were fully considered but were not fully persuasive.

Applicants urge that by describing the structures of  $\text{Na}^+/\text{H}^+$  transporters from different plant species including the one defined in SEQ ID NO: 1, overcomes this rejection (response, Page 11, paragraph 4). However, the specification fails to correlate the structures of the broadly claimed genus to the function of salt tolerance. The only structure whose function has been correlated with increased salt tolerance is the one

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described in SEQ ID NO: 1. SEQ ID NO: 1 does not represent the broadly claimed genus. This is very important in view of the fact that some NHX-type transporter function as  $K^+/H^+$  transporter instead of  $Na^+/H^+$  transporter. Thus, all NHX-type transporters do not share the same function. See Venema et al. as described above.

Accordingly, the rejection is maintained.

7. Claims 1, 9-11 and 17-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1 and 22 recite "under a salt concentration that causes at least a relative yield decrease of 35 percent" which introduces **NEW MATTER** into amended claims. The specification does not provide written description support for yield decrease in plant lacking the NHX-type transporter protein. In the paper filed January 31, 2006 Applicants indicate that support for the amendment of claim 1 can be found on page 48, Table IV. However, Table IV on page 48 describes relative yield decrease and not "seed yield" as recited in the claims. Further, Table IV describes only one oilseed crop i.e. corn. This does not comply with written description requirements.

### ***Summary***

8. Claims 1, 9-11 and 17-30 are rejected.

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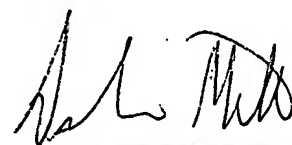
9. Applicants amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is set to expire within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vinod Kumar whose telephone number is (571) 272-4445. The examiner can normally be reached on 8.30 a.m. to 5.00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**ASHWIN D. MENTA, PH.D.**  
**PRIMARY EXAMINER**